

CLAIMS:

1. A pet door comprising a flap defining a pet access opening, a door flap pivotally mounted in the opening about a pivot axis located at an upper edge of the door flap, a latch mechanism to bar the door flap from opening in at least one direction, and a control mechanism for disabling the latch mechanism to permit the door flap to open in the said at least one direction, the control mechanism including an infrared radiation detector which is mounted above a lower edge of the pet access opening and defines a downwardly directed receiving zone for infrared radiation.
2. A pet door according to claim 1 wherein the infrared radiation detector is disposed above the door flap.
3. A pet door according to claim 1 wherein the infrared radiation detector depends downwardly into an upper edge of the pet access opening.
4. A pet door according to claim 1 wherein the infrared radiation detector is disposed adjacent to or extends through a hole in a wall defining an upper edge of the pet access opening.
5. A pet door according to claim 1 wherein the infrared radiation detector is disposed adjacent to an upper portion of the door flap.
6. A pet door according to claim 1 wherein the downwardly directed receiving zone for infrared radiation is conical.
7. A pet door according to claim 1 wherein the downwardly directed receiving zone for infrared radiation has a total beam angle of from 60° to 120°.
8. A pet door according to claim 7 wherein the downwardly directed receiving zone for infrared radiation has a total beam angle of about 90°.

9. A pet door according to claim 1 wherein electrical components of the control system are located in a common part of the frame above the pet access opening.
10. A pet door according to claim 9 wherein the electrical components of the control system and the infrared radiation detector are mounted to a common circuit board located in a cavity of the frame above the pet access opening.
11. A pet door according to claim 9 wherein the electrical components of the control system include an actuator motor for operating a mechanical actuator for the latch mechanism.
12. A pet door according to claim 1 further comprising an attenuating device for ambient infrared radiation in the vicinity of the infrared radiation detector.
13. A pet door according to claim 12 wherein the attenuating device comprises an infrared absorbing material.
14. A pet door according to claim 12 wherein the attenuating device comprises a light filter which is adapted to permit transmission therethrough only of infrared radiation of a selected wavelength.
15. A pet door according to claim 1 which comprises a cat flap, the latch mechanism being arranged to bar the door flap from opening in one direction and the infrared radiation detector being located on the unlatched side of the door flap.
16. A pet door according to claim 1 which comprises a dog door, the latch mechanism being adapted to bar to the door flap from opening in both directions, the infrared radiation detector being located on one side of the door flap, and the door flap is adapted to permit infrared radiation to pass therethrough from the other side of the door flap to be received by the infrared radiation detector.

17. A pet door according to claim 11 which comprises a dog door, the latch mechanism being adapted to bar to the door flap from opening in both directions, the infrared radiation detector being located on one side of the door flap, and the door flap is adapted to permit infrared radiation to pass therethrough from the other side of the door flap to be received by the infrared radiation detector wherein the latch mechanism is operated by at least one mechanical actuator operated by at least one actuating motor.
18. A pet flap according to claim 16 wherein the door flap is provided with a window, which is substantially transparent to infrared radiation, adjacent to the infrared radiation detector.

19. A key for a pet door, the key comprising a housing which is adapted to be fitted to a pet collar, the housing having a window which is substantially transparent to infrared radiation and containing an infrared radiation transmitter, a control circuit and a source of electrical power, with the infrared radiation transmitter being located adjacent to the window.
20. A key according to claim 19 wherein the housing is adapted to depend downwardly from a pet collar so that the window is in a downwardly directed orientation.
21. A key according to claim 20 wherein the infrared radiation transmitter is adapted to transmit infrared radiation over a downwardly directed conical transmitting zone.
22. A key according to claim 19 wherein the infrared radiation transmitter has a beam angle with a total angular extent of from 30° to 90°.
23. A key according to claim 22 wherein the infrared radiation transmitter has a beam angle with a total angular extent of about 60°.
24. A key according to claim 19 wherein the infrared radiation transmitter has a beam angle with a total angular extent of from 10° to 40°.
25. A key according to claim 24 wherein the infrared radiation transmitter has a beam angle with a total angular extent of about 24°.
26. A key according to 19 wherein the housing includes a handle and is adapted to be suspended, by the handle, at a selected angular orientation.
27. A key according to claim 26 wherein an opening is defined in the handle to receive a suspension element therethrough, and the handle is shaped and positioned so that when the key hangs from the suspension element, the housing is suspended within a particular range of angular inclinations with respect to the horizontal.

28. A key according to claim 27 wherein a beam axis of the infrared transmitter is inclined at an angle of from 20 to 60° to the horizontal when the key is suspended by the suspension element.
29. A key according to claim 28 wherein a beam axis of the infrared transmitter is inclined at an angle of about 30° to the horizontal when the key is suspended by the suspension element.
30. A key according to claim 27 wherein the handle is adapted to fix a rigid suspension element at a selected angle with respect to the housing when the key is suspended by the suspension element.
31. A key according to claim 27 wherein a beam axis of the infrared transmitter is inclined at an angle of about 45° to the horizontal when the key is suspended by the suspension element.
32. A key according to claim 27 wherein the opening of the handle is positioned relative to the centre of gravity of the key so that when the key is suspended by a suspension element, the key hangs under its own weight with a beam axis of the infrared transmitter at a selected angle with respect to the horizontal.
33. A key according to claim 19 wherein the control circuit is adapted periodically to cause transmission of a coded infrared signal from the infrared radiation transmitter.
34. The combination of a pet door according to claim 1 and a key according to claim 19.

35. A pet door comprising a flap defining a pet access opening, a door flap pivotally mounted in the opening about a pivot axis located at an upper edge of the door flap, a latch mechanism to bar the door flap from opening in at least one direction, a control mechanism for disabling the latch mechanism to permit the door flap to open in the said at least one direction, the control mechanism including an infrared radiation detector which is mounted above the door flap and defines a downwardly directed conical receiving zone for infrared radiation which has a total beam angle of from 60° to 120°, and an attenuating device for ambient infrared radiation in the vicinity of the infrared radiation detector.